

ARCAM ALPHA 9/9P SERVICE MANUAL

Issue 1 Serial No. 001 - (Paul Newton July 96)

Circuit Description

Input/Output Selection

The Alpha 9 integrated amplifier has 6 line level inputs and optional phono input selected by use of the motorised 'listen' switch, SW201.

The use of the 'record' switch SW202 allows recording of one source whilst listening to another. The Processor/Tape 2 switch, SW207, allows tape monitoring of a 3 head tape deck connected to the Processor/Tape 2 sockets. It can also be used to allow input signals to be routed to an external surround decoder for processing before being routed back to the Alpha 9.

Tone Control & Preamp Out/Power Amp In

The tone control stage on the Alpha 9 is based around a dual op-amp Z2. The first half provides a buffer stage for the tone controls and the second one with its frequency dependent feedback is used as the tone control itself.

The output of the tone control then passes through the balance control RV201 and then onto the power amp stages and the preamp out buffer stage formed by Z203.

The tone controls and balance pot can be bypassed by use of the 'direct' switch SW205.

The Alpha 9 can be driven from an external preamplifier source by moving the internal switch SW206 to disconnect the Alpha 9 preamp stages from the power amp.

Power Amplifier

The signal from either the Alpha 9 input sockets or an external preamp enters the power amp stage via C12 and R35.

Q11, Q16 form a long, tailed pair driven by the current source formed by Q18 and Q19.

Q6 is the Class A stage driving the quasi complementary output stage of Q4, Q5, and mosfet's Q1, 2.

The Alpha 9 and Alpha 9P utilize an auto bias circuit to maintain the correct quiescent current (IQ). The circuit works by monitoring the voltage across the 0.22 ohm resistors R1, RA1 and comparing it to a voltage derived from the - 44v rail

via R24. Both these voltage are fed into the inputs of comparator Z3. If the voltage across the 0.22 ohm resistors increases the output of the comparator goes high impedance and Q15 is turned off. This causes capacitor C72 to discharge and reduce the bias on the base of Q17 which reduces the IQ. Conversely if the voltage across the 0.22 ohm resistors is low then Q15 is turned on more and C72 charges and increases the bias on Q17 and so increases the IQ. Under signal conditions a low frequency, variable mark/space ratio, waveform can be seen on the collector of transistor Q20 as the bias is being automatically adjusted.

Z1 is a d.c. servo used to maintain a low d.c. offset at the speaker outputs.

Power Supplies

The Alpha 9/9P is powered by a toroidal transformer with 2 sets of secondary windings.

The main windings are used to provide +/-44V D.C. after rectification and smoothing by diodes D201-204 inc. reservoir capacitors C201, 202.

The second winding is rectified to provide an unregulated supply voltage for the motor driver ics, Z402 (for the volume control) & Z403 (for the listen selector). This unregulated supply is also smoothed and regulated with a simple stabilizer circuit (zener diode D402 and associated components) to provide a stable voltage for the micro controller Z401.

Protection/ Mute circuit

The protection and mute functions are carried out by Z501. This performs turn on delay, d.c. offset detection and thermal cutout. It also displays the status of the amplifier with the use of a bicolour LED - 'Green' for ready and 'Amber' for when the speakers are disconnected internally because of a fault condition or on initial power up whilst the 5 second switch on delay mute is operating.

If the unit suffers a current overload the protection circuit may latch and the unit will not reset until it has been switched off and on again. If the protection is activated by a thermal problem the unit will begin to operate again when it has cooled down.

The thermal cut out operating point is set by the thermistor TH501, mounted close to the output device heatsinks.

Disc Stage (optional)

ALPHA 9/9P SERVICE MANUAL

The optional phono stage board available for the Alpha 9 provides amplification and RIAA equalization for both moving coil (MC) and moving magnet (MM) cartridges.

Transistors Q2-5 and their associated components provide the extra gain required for moving coil cartridges when required Z1 forms a flat response gain stage with the gain set by R3 and R4. R5 and C2 provide a low pass filter used as the high frequency part of the RIAA de-emphasis. The negative feedback loop around IC2, R7, 8, 9, 10 and C3 provides the active low frequency RIAA de-emphasis.

The pcb mounted switch selects between MM or MC. The board is powered by +/- 15V regulated rails from the main pcb and the +15V rail is then regulated to 6.3V by Q1 and D1, D2 to power the moving coil stage.

Disassembly For Servicing

1. Remove the top cover and front panel.
2. Remove 2 screws securing the sub front to the chassis sides and 3 screws holding the subfront to the chassis base.
3. Remove 3 screws holding the pcb to the chassis. These can be found close to the large heatsink and also near to the mains inlet socket.
4. Remove 5 screws from the rear panel, one at each end and 3 along the bottom edge.
5. Remove the transformer bolt.

The pcb, with the rear panel, transformer and subfront attached, can now be pulled backwards out of the unit.

TEST POINT	DC VOLTAGE
TP1	+ 5V
TP2	+9.6V
TP3	0V MUTE ON +2V MUTE OFF
TP4	0V VOL UP +5V VOL DOWN
TP5	+5V VOL UP 0V VOL DOWN
TP6	+15V
TP7	-15V
TP8	+44V
TP9	-44V

TEST POINT	DC VOLTAGE
TP10	0.5V
TP11	0.5V
TP12	-2V
TP13	-2V
TP14	+2.2V
TP15	+2.2V
TP16	+6.8V
TP17	0V MUTE ON +2V MUTE OFF

The IQ voltage measured across the 0.22 ohm resistors R1, RA1 or R101, RA101 should be about 6-7 mV.

ALPHA 9/9P SERVICE MANUAL

Alpha 9 Integrated Amplifier Parts List		
Ref. No.	Description	Part No.
C1	ELST 100U 25V	2N710
C2	PEST 47N 63V 5%	2K347
C3	ELST 100U 100V	2N710B
C4	PCRB 100N 100V 5% RA 5mm	2H410
C5	PPRO 680P 5% 63V RA	2D168
C6	PSTY 56P 160V ENCAP 1PF%	2F056
C7	ELST 10U 50V	2N610
C8	ELST 100U 25V	2N710
C9	PEST 15N 63V 5%	2K315
C10	PEST 15N 63V 5%	2K315
C11	PPRO 220P 5% 63V RA	2D122
C12	ELST NON POLAR 10UF 35V	2U610
C13N	PPRO 220P 5% 63V RA	2D122
C14N	PPRO 220P 5% 63V RA	2D122
C15N	ELST 10U 50V	2N610
C16N	PCRB 100N 100V 5% RA 5mm	2H410
C17N	PCRB 100N 100V 5% RA 5mm	2H410
C18N	PPRO 100P 63V 5% RA	2D110N
C19N	PPRO 100P 63V 5% RA	2D110N
C20	PEST 15N 63V 5%	2K315
C21N	ELST 10U 50V	2N610
C22	PCRB 100N 100V 5% RA 5mm	2H410
C23	PCRB 100N 100V 5% RA 5mm	2H410
C25N	PPRO 2N2 5% 63V RA	2D222
C26N	ELST 10U 50V	2N610
C71	ELST 10U 50V	2N610
C72	ELST 100U 25V	2N710
C101	ELST 100U 25V	2N710
C102	PEST 47N 63V 5%	2K347
C103	ELST 100U 100V	2N710B
C104	PCRB 100N 100V 5% RA 5mm	2H410
C105	PPRO 680P 5% 63V RA	2D168

Alpha 9 Integrated Amplifier Parts List		
Ref. No.	Description	Part No.
C106	PSTY 56P 160V ENCAP 1PF%	2F056
C107	ELST 10U 50V	2N610
C108	ELST 100U 25V	2N710
C109	PEST 15N 63V 5%	2K315
C110	PEST 15N 63V 5%	2K315
C111	PPRO 220P 5% 63V RA	2D122
C112	ELST NON POLAR 10UF 35V	2U610
C113N	PPRO 220P 5% 63V RA	2D122
C114N	PPRO 220P 5% 63V RA	2D122
C115N	ELST 10U 50V	2N610
C116N	PCRB 100N 100V 5% RA 5mm	2H410
C117N	PCRB 100N 100V 5% RA 5mm	2H410
C118N	PPRO 100P 63V 5% RA	2D110N
C119N	PPRO 100P 63V 5% RA	2D110N
C120	PEST 15N 63V 5%	2K315
C121N	ELST 10U 50V	2N610
C122	PCRB 100N 100V 5% RA 5mm	2H410
C123	PCRB 100N 100V 5% RA 5mm	2H410
C125N	PPRO 2N2 5% 63V RA	2D222
C126N	ELST 10U 50V	2N610
C172	ELST 100U 25V	2N710
C173	ELST 100U 25V	2N710
C201	ELST 10m 50V RA 32mm	2N910
C202	ELST 10m 50V RA 32mm	2N910
C205	PPRO 4N7 63V 5% RA	2D247N
C206	PPRO 4N7 63V 5% RA	2D247N
C207	ELST 10U 50V	2N610
C208	ELST 10U 50V	2N610
C209	ELST 10U 50V	2N610
C210	ELST 10U 50V	2N610
C301N	CERD 1N0 63V 20% RA	2A210
C401N	ELST 1M0 25V	2N810

ALPHA 9/9P SERVICE MANUAL

C402N	CERD 10N 63V 20% RA	2A310
C403N	ELST 1M0 25V	2N810
C404	CERD 10N 63V 20% RA	2A310
C405N	CERD 10N 63V 20% RA	2A310
C406N	CERD 10N 63V 20% RA	2A310
C407N	CERD 10N 63V 20% RA	2A310
C408N	CERD 10N 63V 20% RA	2A310
C409N	CERD 10N 63V 20% RA	2A310
C410N	ELST 10U 50V	2N610
C411N	ELST 1U0 50V 20% RA	2N510
C501	ELST 100U 25V	2N710
C502	ELST 1U0 50V 20% RA	2N510
C503	ELST 100U 25V	2N710
C504	ELST 1U0 50V 20% RA	2N510
C505	SUPPR CAP 4N7 250V	2K247
C506	CERD 10N 63V 20% RA	2A310
C507	CERD 1N0 63V 20% RA	2A210
C508	CERD 1N0 63V 20% RA	2A210
C509	CERD 1N0 63V 20% RA	2A210
C510	CERD 1N0 63V 20% RA	2A210
C511	CERD 1N0 63V 20% RA	2A210
C512	CERD 1N0 63V 20% RA	2A210
C601N	PPRO 220P 5% 63V RA	2D122
C602N	PEST 15N 63V 5%	2K315
C603N	CERD 10N 63V 20% RA	2A310
D1	ZENER 10V 400MW	3C11004
D2	RECTIFIER 1N4003F 1A 200V	3B4003
D3	ZENER 10V 400MW	3C11004
D4	ZENER 10V 400MW	3C11004
D5	ZENER 5V6 400MW	3C05604
D6	ZENER 22V 400MW	3C22004
D101	ZENER 10V 400MW	3C11004
D102	RECTIFIER 1N4003F 1A 200V	3B4003
D103	ZENER 10V 400MW	3C11004

D104	ZENER 10V 400MW	3C11004
D106	ZENER 22V 400MW	3C22004
D201	RECTIFIER MUR420 4A 220V	3B420
D202	RECTIFIER MUR420 4A 220V	3B420
D203	RECTIFIER MUR420 4A 220V	3B420
D204	RECTIFIER MUR420 4A 220V	3B420
D401N	RECTIFIER 1N4003F 1A 200V	3B4003
D402N	ZENER 5V6 400MW	3C05604
D403N	RECTIFIER 1N4003F 1A 200V	3B4003
D404N	ZENER 5V6 400MW	3C05604
D405N	ZENER 5V6 400MW	3C05604
D406N	SSDIODE 1N4148 75V	3A4148
D407N	RECTIFIER 1N4003F 1A 200V	3B4003
D408N	ZENER 5V6 400MW	3C05604
D501	RECTIFIER 1N4003F 1A 200V	3B4003
D502	RECTIFIER 1N4003F 1A 200V	3B4003
D503	RECTIFIER 1N4003F 1A 200V	3B4003
D504	RECTIFIER 1N4003F 1A 200V	3B4003
D505N	RECTIFIER 1N4003F 1A 200V	3B4003
D602	ZENER 5V6 400MW	3C05604
F501	INS COVER PCB FUSEHOLDER	F022
F501	FUSEHOLDER 20mm PCB	8S004
F501	SPARE FUSE 20mm 1.6A AS	C12166
FS502	INS COVER PCB FUSEHOLDER	F022
FS502	FUSEHOLDER 20mm PCB	8S004
HS1	ALPHA9 & AV50 HEATSINK	E801HK
HS201	HEATSINK TO220 13 DEGC/W	F005
HS201	HEATSINK CLIP TO220 13/8.6 DC/W	F006
HS202	HEATSINK TO220 CLIP 23DEG/W	F004
KP1	KWIKSTIK PAD S/A 25 X 12mm	F157S
KP2	KWIKSTIK PAD S/A 25 X 12mm	F157S
L1	INDUCT 2U2 15x25mm AD2018	7D002A
L101	INDUCT 2U2 15x25mm AD2018	7D002A
LED601	LED RED/GREEN 5MM	3D002

ALPHA 9/9P SERVICE MANUAL

LK401N	JUMPER 3 WAY x 125mm	L815CA
LK501N	LINK BANDOL PREFORM 10mm	1X010A
LK601	JUMPER 3 WAY x 125mm	L815CA
MI	MAINS SWITCH SD33P INSULATOR	E00301
MS	MAINS SWITCH SPACER	E66901
PL1N	2WAY MOLEX VERT MALE CONNECTOR	8K6201
Q1	TRANS POWER MOSFET IRPF240	4K240
Q2	TRANS POWER MOSFET IRPF240	4K240
Q3	TRANS LF SS P 2SA1085	4A1085
Q4	TRANS LF SS N 2SC2547	4A2546
Q5	TRANS LF SS P 2SA1085	4A1085
Q6	TRANS LF SS P BC556B	4A556
Q7	TRANS LF SS N BC546B	4A546
Q8	TRANS LF SS P BC556B	4A556
Q9	TRANS LF SS N BC546B	4A546
Q10	TRANS LF SS P BC557B	4A557
Q11	TRANS LF SS N BC547B	4A547
Q12	TRANS LF SS N 2SC2547	4A2546
Q13	TRANS LF SS P BC557B	4A557
Q14	TRANS LF SS N 2SC2547	4A2546
Q15	TRANS LF SS P BC557B	4A557
Q16	TRANS LF SS N BC547B	4A547
Q17	TRANS LF SS N BC547B	4A547
Q18	TRANS LF SS N BC547B	4A547
Q19	TRANS LF SS N BC547B	4A547
Q20	TRANS LF SS N BC547B	4A547
Q101	TRANS POWER MOSFET IRPF240	4K240
Q102	TRANS POWER MOSFET IRPF240	4K240
Q103	TRANS LF SS P 2SA1085	4A1085
Q104	TRANS LF SS N 2SC2547	4A2546
Q105	TRANS LF SS P 2SA1085	4A1085
Q106	TRANS LF SS P BC556B	4A556
Q107	TRANS LF SS N BC546B	4A546
Q108	TRANS LF SS P BC556B	4A556

Q109	TRANS LF SS N BC546B	4A546
Q110	TRANS LF SS P BC557B	4A557
Q111	TRANS LF SS N BC547B	4A547
Q112	TRANS LF SS N 2SC2547	4A2546
Q113	TRANS LF SS P BC557B	4A557
Q114	TRANS LF SS N 2SC2547	4A2546
Q115	TRANS LF SS P BC557B	4A557
Q116	TRANS LF SS N BC547B	4A547
Q117	TRANS LF SS N BC547B	4A547
Q118	TRANS LF SS N BC547B	4A547
Q119	TRANS LF SS N BC547B	4A547
Q120	TRANS LF SS N BC547B	4A547
Q121	TRANS LF SS P 2SA1085	4A1085
Q401N	TRANS LF SS N BC547B	4A547
Q402N	TRANS LF SS P BC557B	4A557
Q403N	TRANS LF SS P BC557B	4A557
Q502	TRANS LF SS N 2SC2547	4A2546
R1	RES MO 3W 5% 0R22 KOASPR3	1Q922
R2	RES CF 1W 1R5 5%	1E815
R3	RES CF 1W 5R6 5%	1E856
R4	RES MF FU W3 100R 5% NFR25	1G110
R5	RES MF W4 470R 1%	1H147
R6	RES MF FU W3 100R 5% NFR25	1G110
R7	RES MF W4 470R 1%	1H147
R8	RES MF FU W3 100R 5% NFR25	1G110
R9	RES MF W4 1K0 1%	1H210
R10	RES MF W4 1K0 1%	1H210
R11	RES MF FU W3 220R 5% NFR25	1G122
R12	RES MF FU W3 220R 5% NFR25	1G122
R13	RES MF FU W3 470R 5% NFR25	1G147
R14	RES MF FU W3 470R 5% NFR25	1G147
R15	RES MF W4 1K0 1%	1H210
R16	RES MF W4 18K 1%	1H318
R17	RES MF W4 5K6 1%	1H256

ALPHA 9/9P SERVICE MANUAL

R18	RES MF W4 2K7 1%	1H227
R19	RES MF W4 2K7 1%	1H227
R20	RES MF W4 4K7 1%	1H247
R21	RES MF W4 330R 1%	1H133
R22	RES MF W4 2K7 1%	1H227
R23	RES MF W4 100R 1%	1H110
R24	RES MF W4 220K 1%	1H422
R25	RES MF W4 18K 1%	1H318
R26	RES MF W4 2K7 1%	1H227
R27	RES MF W4 5K6 1%	1H256
R28	RES MF FU W3 10R 5% NFR25	1G010
R29	RES MF FU W3 470R 5% NFR25	1G147
R30	RES MF W4 100K 1%	1H410
R31	RES MF W4 120K 1%	1H412
R32	RES MF W4 47K 1%	1H347
R33	RES MF W4 470K 1%	1H447
R34	RES MF W4 47K 1%	1H347
R35	RES MF W4 2K7 1%	1H227
R36N	RES MF W4 5K6 1%	1H256
R37N	RES MF W4 6K8 1%	1H268
R38N	RES MF W4 6K8 1%	1H268
R39N	RES MF W4 12K 1%	1H312
R40N	RES MF W4 6K8 1%	1H268
R41N	RES MF W4 10K 1%	1H310
R42N	RES MF W4 12K 1%	1H312
R43N	RES MF W4 470R 1%	1H147
R46N	RES MF W4 100K 1%	1H410
R47N	RES MF W4 4K7 1%	1H247
R48N	RES MF W4 4K7 1%	1H247
R49N	RES MF W4 1K8 1%	1H218
R50N	RES MF W4 6K8 1%	1H268
R51N	RES MF W4 100R 1%	1H110
R52	RES MF W4 6K8 1%	1H268
R53	RES MF W4 2K2 1%	1H222

R54N	RES MF W4 1K8 1%	1H218
R55N	RES MF W4 1K0 1%	1H210
R56	RES MF W4 56R 1%	1H056
R57N	RES MF W4 100K 1%	1H410
R58	RES MF W4 330R 1%	1H133
R59	RES MF W4 27K 1%	1H327
R60	RES MF W4 1K0 1%	1H210
R61	RES MF W4 33K 1%	1H333
R62N	RES MF W4 820R 1%	1H182
R71	RES MF W4 15K 1%	1H315
R72	RES MF W4 15K 1%	1H315
R73	RES MF W4 15K 1%	1H315
R74	RES MF W4 15K 1%	1H315
R75	RES MF W4 10K 1%	1H310
R76	RES MF W4 12K 1%	1H312
R77	RES MF W4 220K 1%	1H422
R78	RES MF W4 120K 1%	1H412
R79	RES MF W4 33K 1%	1H333
R80	RES MF W4 1K5 1%	1H215
R81	RES MF W4 2K2 1%	1H222
R82	RES MF W4 100R 1%	1H110
R83	RES MF W4 4K7 1%	1H247
R84	RES MF W4 18K 1%	1H318
R101	RES MO 3W 5% 0R22 KOASPR3	1Q922
R102	RES CF 1W 1R5 5%	1E815
R103	RES CF 1W 5R6 5%	1E856
R104	RES MF FU W3 100R 5% NFR25	1G110
R105	RES MF W4 470R 1%	1H147
R106	RES MF FU W3 100R 5% NFR25	1G110
R107	RES MF W4 470R 1%	1H147
R108	RES MF FU W3 100R 5% NFR25	1G110
R109	RES MF W4 1K0 1%	1H210
R110	RES MF W4 1K0 1%	1H210
R111	RES MF FU W3 220R 5% NFR25	1G122

ALPHA 9/9P SERVICE MANUAL

R112	RES MF FU W3 220R 5% NFR25	1G122
R113	RES MF FU W3 470R 5% NFR25	1G147
R114	RES MF FU W3 470R 5% NFR25	1G147
R115	RES MF W4 1K0 1%	1H210
R116	RES MF W4 18K 1%	1H318
R117	RES MF W4 5K6 1%	1H256
R118	RES MF W4 2K7 1%	1H227
R119	RES MF W4 2K7 1%	1H227
R120	RES MF W4 4K7 1%	1H247
R121	RES MF W4 330R 1%	1H133
R122	RES MF W4 2K7 1%	1H227
R123	RES MF W4 100R 1%	1H110
R124	RES MF W4 220R 1%	1H122
R125	RES MF W4 18K 1%	1H318
R126	RES MF W4 2K7 1%	1H227
R127	RES MF W4 5K6 1%	1H256
R128	RES MF FU W3 10R 5% NFR25	1G010
R129	RES MF FU W3 470R 5% NFR25	1G147
R130	RES MF W4 100K 1%	1H410
R131	RES MF W4 120K 1%	1H412
R132	RES MF W4 47K 1%	1H347
R133	RES MF W4 470K 1%	1H447
R134	RES MF W4 47K 1%	1H347
R135	RES MF W4 2K7 1%	1H227
R136N	RES MF W4 5K6 1%	1H256
R137N	RES MF W4 6K8 1%	1H268
R138N	RES MF W4 6K8 1%	1H268
R139N	RES MF W4 12K 1%	1H312
R140N	RES MF W4 6K8 1%	1H268
R141N	RES MF W4 10K 1%	1H310
R142N	RES MF W4 12K 1%	1H312
R143N	RES MF W4 470R 1%	1H147
R146N	RES MF W4 100K 1%	1H410
R147N	RES MF W4 4K7 1%	1H247

R148N	RES MF W4 4K7 1%	1H247
R149N	RES MF W4 1K8 1%	1H218
R150N	RES MF W4 6K8 1%	1H268
R151N	RES MF W4 100R 1%	1H110
R152	RES MF W4 6K8 1%	1H268
R153	RES MF W4 2K2 1%	1H222
R154N	RES MF W4 1K8 1%	1H218
R155N	RES MF W4 1K0 1%	1H210
R156	RES MF W4 56R 1%	1H056
R157N	RES MF W4 100K 1%	1H410
R158	RES MF W4 330R 1%	1H133
R159	RES MF W4 27K 1%	1H327
R160	RES MF W4 1K0 1%	1H210
R161	RES MF W4 33K 1%	1H333
R162N	RES MF W4 820R 1%	1H182
R173	RES MF W4 15K 1%	1H315
R174	RES MF W4 15K 1%	1H315
R175	RES MF W4 10K 1%	1H310
R176	RES MF W4 12K 1%	1H312
R177	RES MF W4 220K 1%	1H422
R178	RES MF W4 120K 1%	1H412
R179	RES MF W4 33K 1%	1H333
R180	RES MF W4 1K5 1%	1H215
R181	RES MF W4 2K2 1%	1H222
R182	RES MF W4 100R 1%	1H110
R183	RES MF W4 4K7 1%	1H247
R184	RES MF W4 18K 1%	1H318
R185	RES MF W4 47K 1%	1H347
R201	RES MF W4 2K4 1%	1H224
R202	RES MF W4 220R 1%	1H122
R203	RES MF W4 2K4 1%	1H224
R204	RES MF W4 220R 1%	1H122
R205	RES MF FU W3 10R 5% NFR25	1G010
R206	RES MF FU W3 10R 5% NFR25	1G010

ALPHA 9/9P SERVICE MANUAL

R207	RES MF FU W3 10R 5% NFR25	1G010
R401N	RES MF FU W3 10R 5% NFR25	1G010
R402N	RES MF W4 1K0 1%	1H210
R403N	RES MF W4 1K0 1%	1H210
R404	RES MF FU W3 1R0 5% NFR25	1G810
R405N	RES MF W4 1K0 1%	1H210
R406N	RES MF W4 4K7 1%	1H247
R407N	RES MF W4 4K7 1%	1H247
R408N	RES MF W4 470R 1%	1H147
R410N	RES CF 1W 2K7 5%	1E227
R501	RES MF W4 47K 1%	1H347
R502	RES MF W4 47K 1%	1H347
R503	RES MF W4 100R 1%	1H110
R504	RES MF W4 47K 1%	1H347
R505	RES MF W4 47K 1%	1H347
R506	RES MF W4 100K 1%	1H410
R507	RES MF W4 18K 1%	1H318
R508	RES MF W4 47K 1%	1H347
R509	RES MF W4 47K 1%	1H347
R510	RES MF W4 100K 1%	1H410
R511	RES MF W4 18K 1%	1H318
R512	RES MF W4 18K 1%	1H318
R513	RES MF W4 33K 1%	1H333
R514	RES MF W4 47K 1%	1H347
R515	RES CF 1W 1K0 5%	1E210
R516	RES CF 1W 1K0 5%	1E210
R517	RES CF 1W 2K7 5%	1E227
R518	RES CF 1W 2K7 5%	1E227
R519	RES CF 1W 330R 5%	1E133
R520	RES CF 1W 330R 5%	1E133
R521N	RES CF 1W 2K7 5%	1E227
R524	RES MF W4 18K 1%	1H318
R525	RES CF W2 100R 5%	1D110
R526	RES CF W2 100R 5%	1D110

R527	RES MF W4 10R 1%	1H010
R601N	RES MF W4 22R 1%	1H022
R602N	RES MF W4 22R 1%	1H022
R603N	RES MF W4 6K8 1%	1H268
R604N	RES MF W4 2K2 1%	1H222
R605N	RES MF W4 6K8 1%	1H268
R606N	RES MF W4 2K2 1%	1H222
RA1	RES MO 3W 5% 0R22 KOASPR3	1Q922
RA101	RES MO 3W 5% 0R22 KOASPR3	1Q922
RLY401N	RELAY 960 OHM 51SB12T	A205
RLY501	RELAY G5Z-2A-E 24V	A207
RLY502	RELAY G5Z-2A-E 24V	A207
RLY503N	RELAY 960 OHM 51SB12T	A205
RP401N	RES NETWORK 100Kx8 COMMON	1V410
RV201N	POT 20KA* 2 LIN A	6A320E
RV202N	POT 20KA* 2 LIN A	6A320E
RV203N	POT 20KA* 2 LIN A	6A320E
RV601N	POT 20KA* 2 LOG A MOTORISED	6A330M
RX1N	REMOTE CONTROL RECEIVER SBX1610-62 38KHZ	B2103
SK501	BINDING POST 4WAY GOLD LTS04102002G	8D416
SK502	BINDING POST 4WAY GOLD LTS04102002G	8D416
SK201N	PRESSACTL 8-WAY MALE VERT	8K5181
SK301N	PHONO SKT 4-WAY EMC GOLD	8D225
SK302N	PHONO SKT 4-WAY EMC GOLD	8D225
SK303N	PHONO SKT 4-WAY EMC GOLD	8D225
SK304N	PHONO SKT 4-WAY EMC GOLD	8D225
SK305	PHONO SKT 4-WAY EMC GOLD	8D225
SK503	IEC MAINS CONN PCB INS PX	8A001
SK504	STEREO JACK PCB	8D301
SK601N	JUMPER 2 W LEAD APL5	1Y271
SK602N	JUMPER 8-WAY LEAD	L809CA
SPRFS	SPARE FUSEHOLDER	F062
SPRFS	SPARE FUSE 20mm 1.6A AS	C12166
SW201N	SWITCH ROTARY 6W MOTOR	A1207

ALPHA 9/9P SERVICE MANUAL

SW202N	SW ROTARY 6W 4 POLE	A1210
SW205N	SW PUSH 2PCO	A1008
SW206N	2PC SLIDER SW MSS2200	A1401
SW207N	SW PUSH 4PCO	A1013
SW402N	2PC R/A SLIDE SW	A1402
SW501	SW PUSH 2PCO	A1008
SW502	SW PUSH 2PCO	A1008
SW503	SWITCH PUSH MAINS OPST SDS3P	A1006
TC1	TRANSFORMER CLAMP	E00201
TC2	TRANSFORMER CLAMP	E00201
TH501	THERMISTOR SIEMENS B59008	1T002
TX1	ALPHA9 MULTI VOLTAGE TRANSFORMER	L817TX
X401N	CER RESON CST4.19MG 4.19MHz	7W002
Y2	TX WIRE RESTRAINT	F185
Y3	TX WIRE RESTRAINT	F185
Y20	COPPER RIVET	HP007
Y21	COPPER RIVET	HP007
Z1	IC AUDIO NE5534N	5A5534
Z2N	IC AUDIO DUAL JRC4560	5B4560
Z3	IC COMPARITOR DUAL LM393A	5M393A
Z101	IC AUDIO NE5534N	5A5534
Z102N	IC AUDIO DUAL JRC4560	5B4560
Z201	IC VREG POS LM317T	5D317T
Z202	IC VREG POS LM337T	5D337
Z203N	IC AUDIO DUAL TL072	5B072
Z401N	IC SOCKET 18 PIN 0.3"	8S018
Z401N	IC CMOS MICRO PIC16C54XT/P	5H16C54X
Z402N	MOTOR DRIVER 5Q6109	5Q6109
Z403N	MOTOR DRIVER 5Q6109	5Q6109
Z501	IC COMPARITOR TA7317P	5M7317

Alpha 9 Amplifier Non PCB Parts, Metalwork etc.

Part No.	Description
B3002	AA BATTERY FOR REMOTE CONTROL
E66801	REAR PHONO INPUT BLANKING PLATE
E802CH	CHASSIS
E802MI	PCB INSULATOR
E803SP	ALPHA 9/9P AMP SUBPANEL
E804AP	FELT RING
E804CP	ALPHA 9/9P COVERPLATE
E808RP	REAR PANEL
E813FP	ALPHA 9 FASCIA
E815PM	POWER BUTTON
E818PM	VOLUME KNOB
E819PM	BALANCE/TREBLE/BASS KNOB
E820PM	LISTEN KNOB
E822PM	FOOT
E825PM	ALPHA 9 BADGE
E901HK	HEATSINK ANODISED
F037	TOROIDIAL TRANSFORMER CLAMP
F038	RUBBER WASHER FOR ABOVE
HA6K55A	TRANSFORMER BOLT
L802RC	HANDI REMOTE CONTROL
SH053	OWNERS HANDBOOK
SH058	WARRANTY LEAFLET

ALPHA 9/9P SERVICE MANUAL

Alpha 9P Power Amplifier Parts List		
Ref. No.	Description	Part No.
C1	ELST 100U 25V	2N710
C2	PEST 47N 63V 5%	2K347
C3	ELST 100U 100V	2N710B
C4	PCRB 100N 100V 5% RA 5mm	2H410
C5	PPRO 680P 5% 63V RA	2D168
C6	PSTY 56P 160V ENCAP 1PF%	2F056
C7	ELST 10U 50V	2N610
C8	ELST 100U 25V	2N710
C9	PEST 15N 63V 5%	2K315
C10	PEST 15N 63V 5%	2K315
C11	PPRO 220P 5% 63V RA	2D122
C12	ELST NON POLAR 10UF 35V	2U610
C20	PEST 15N 63V 5%	2K315
C22	PCRB 100N 100V 5% RA 5mm	2H410
C23	PCRB 100N 100V 5% RA 5mm	2H410
C71	ELST 10U 50V	2N610
C72	ELST 100U 25V	2N710
C101	ELST 100U 25V	2N710
C102	PEST 47N 63V 5%	2K347
C103	ELST 100U 100V	2N710B
C104	PCRB 100N 100V 5% RA 5mm	2H410
C105	PPRO 680P 5% 63V RA	2D168
C106	PSTY 56P 160V ENCAP 1PF%	2F056
C107	ELST 10U 50V	2N610
C108	ELST 100U 25V	2N710
C109	PEST 15N 63V 5%	2K315
C110	PEST 15N 63V 5%	2K315
C111	PPRO 220P 5% 63V RA	2D122
C112	ELST NON POLAR 10UF 35V	2U610
C120	PEST 15N 63V 5%	2K315
C122	PCRB 100N 100V 5% RA 5mm	2H410
C123	PCRB 100N 100V 5% RA 5mm	2H410

Alpha 9P Power Amplifier Parts List		
Ref. No.	Description	Part No.
C172	ELST 100U 25V	2N710
C173	ELST 100U 25V	2N710
C201	ELST 10m 50V RA 32mm	2N910
C202	ELST 10m 50V RA 32mm	2N910
C205	PPRO 4N7 63V 5% RA	2D247N
C206	PPRO 4N7 63V 5% RA	2D247N
C207	ELST 10U 50V	2N610
C208	ELST 10U 50V	2N610
C209	ELST 10U 50V	2N610
C210	ELST 10U 50V	2N610
C404	CERD 10N 63V 20% RA	2A310
C501	ELST 100U 25V	2N710
C502	ELST 1U0 50V 20% RA	2N510
C503	ELST 100U 25V	2N710
C504	ELST 1U0 50V 20% RA	2N510
C505	SUPPR CAP 4N7 250V	2K247
C506	CERD 10N 63V 20% RA	2A310
C507	CERD 1N0 63V 20% RA	2A210
C508	CERD 1N0 63V 20% RA	2A210
C509	CERD 1N0 63V 20% RA	2A210
C510	CERD 1N0 63V 20% RA	2A210
C511	CERD 1N0 63V 20% RA	2A210
C512	CERD 1N0 63V 20% RA	2A210
D1	ZENER 10V 400MW	3C11004
D2	RECTIFIER 1N4003F 1A 200V	3B4003
D3	ZENER 10V 400MW	3C11004
D4	ZENER 10V 400MW	3C11004
D5	ZENER 5V6 400MW	3C05604
D6	ZENER 22V 400MW	3C22004
D101	ZENER 10V 400MW	3C11004
D102	RECTIFIER 1N4003F 1A 200V	3B4003
D103	ZENER 10V 400MW	3C11004

ALPHA 9/9P SERVICE MANUAL

D104	ZENER 10V 400MW	3C11004
D106	ZENER 22V 400MW	3C22004
D201	RECTIFIER MUR420 4A 220V	3B420
D202	RECTIFIER MUR420 4A 220V	3B420
D203	RECTIFIER MUR420 4A 220V	3B420
D204	RECTIFIER MUR420 4A 220V	3B420
D501	RECTIFIER 1N4003F 1A 200V	3B4003
D502	RECTIFIER 1N4003F 1A 200V	3B4003
D503	RECTIFIER 1N4003F 1A 200V	3B4003
D504	RECTIFIER 1N4003F 1A 200V	3B4003
D602	ZENER 5V6 400MW	3C05604
F501	FUSEHOLDER 20mm PCB	8S004
F501	INS COVER PCB FUSEHOLDER	F022
F501	SPARE FUSE 20mm 1.6A AS	C12166
FS502	FUSEHOLDER 20mm PCB	8S004
FS502	INS COVER PCB FUSEHOLDER	F022
HS1	ALPHA9 & AV50 HEATSINK	E801HK
HS201	HEATSINK CLIP TO220 13/8.6 DC/W	F006
HS201	HEATSINK TO220 13 DEGC/W	F005
HS202	HEATSINK TO220 CLIP 23DEG/W	F004
KP1	KWIKSTIK PAD S/A 25 X 12mm	F157S
KP2	KWIKSTIK PAD S/A 25 X 12mm	F157S
L1	INDUCT 2U2 15x25mm AD2018	7D002A
L101	INDUCT 2U2 15x25mm AD2018	7D002A
LED601	LED RED/GREEN 5MM	3D002
LK1P	LINK BANDOL PREFORM 10mm	1X010A
LK2P	LINK BANDOL PREFORM 10mm	1X010A
LK3P	LINK BANDOL PREFORM 10mm	1X010A
LK4P	LINK BANDOL PREFORM 10mm	1X010A
LK502P	LINK BANDOL PREFORM 10mm	1X010A
LK601	JUMPER 3 WAY x 125mm	L815CA
MI	MAINS SWITCH SD33P INSULATOR	E00301
MS	MAINS SWITCH SPACER	E66901
Q1	TRANS POWER MOSFET IRPF240	4K240

Q2	TRANS POWER MOSFET IRPF240	4K240
Q3	TRANS LF SS P 2SA1085	4A1085
Q4	TRANS LF SS N 2SC2547	4A2546
Q5	TRANS LF SS P 2SA1085	4A1085
Q6	TRANS LF SS P BC556B	4A556
Q7	TRANS LF SS N BC546B	4A546
Q8	TRANS LF SS P BC556B	4A556
Q9	TRANS LF SS N BC546B	4A546
Q10	TRANS LF SS P BC557B	4A557
Q11	TRANS LF SS N BC547B	4A547
Q12	TRANS LF SS N 2SC2547	4A2546
Q13	TRANS LF SS P BC557B	4A557
Q14	TRANS LF SS N 2SC2547	4A2546
Q15	TRANS LF SS P BC557B	4A557
Q16	TRANS LF SS N BC547B	4A547
Q17	TRANS LF SS N BC547B	4A547
Q18	TRANS LF SS N BC547B	4A547
Q19	TRANS LF SS N BC547B	4A547
Q20	TRANS LF SS N BC547B	4A547
Q101	TRANS POWER MOSFET IRPF240	4K240
Q102	TRANS POWER MOSFET IRPF240	4K240
Q103	TRANS LF SS P 2SA1085	4A1085
Q104	TRANS LF SS N 2SC2547	4A2546
Q105	TRANS LF SS P 2SA1085	4A1085
Q106	TRANS LF SS P BC556B	4A556
Q107	TRANS LF SS N BC546B	4A546
Q108	TRANS LF SS P BC556B	4A556
Q109	TRANS LF SS N BC546B	4A546
Q110	TRANS LF SS P BC557B	4A557
Q111	TRANS LF SS N BC547B	4A547
Q112	TRANS LF SS N 2SC2547	4A2546
Q113	TRANS LF SS P BC557B	4A557
Q114	TRANS LF SS N 2SC2547	4A2546
Q115	TRANS LF SS P BC557B	4A557

ALPHA 9/9P SERVICE MANUAL

Q116	TRANS LF SS N BC547B	4A547
Q117	TRANS LF SS N BC547B	4A547
Q118	TRANS LF SS N BC547B	4A547
Q119	TRANS LF SS N BC547B	4A547
Q120	TRANS LF SS N BC547B	4A547
Q121	TRANS LF SS P 2SA1085	4A1085
Q502	TRANS LF SS N 2SC2547	4A2546
R1	RES MO 3W 5% 0R22 KOASPR3	1Q922
R2	RES CF 1W 1R5 5%	1E815
R3	RES CF 1W 5R6 5%	1E856
R4	RES MF FU W3 100R 5% NFR25	1G110
R5	RES MF W4 470R 1%	1H147
R6	RES MF FU W3 100R 5% NFR25	1G110
R7	RES MF W4 470R 1%	1H147
R8	RES MF FU W3 100R 5% NFR25	1G110
R9	RES MF W4 1K0 1%	1H210
R10	RES MF W4 1K0 1%	1H210
R11	RES MF FU W3 220R 5% NFR25	1G122
R12	RES MF FU W3 220R 5% NFR25	1G122
R13	RES MF FU W3 470R 5% NFR25	1G147
R14	RES MF FU W3 470R 5% NFR25	1G147
R15	RES MF W4 1K0 1%	1H210
R16	RES MF W4 18K 1%	1H318
R17	RES MF W4 5K6 1%	1H256
R18	RES MF W4 2K7 1%	1H227
R19	RES MF W4 2K7 1%	1H227
R20	RES MF W4 4K7 1%	1H247
R21	RES MF W4 330R 1%	1H133
R22	RES MF W4 2K7 1%	1H227
R23	RES MF W4 100R 1%	1H110
R24	RES MF W4 220K 1%	1H422
R25	RES MF W4 18K 1%	1H318
R26	RES MF W4 2K7 1%	1H227
R27	RES MF W4 5K6 1%	1H256

R28	RES MF FU W3 10R 5% NFR25	1G010
R29	RES MF FU W3 470R 5% NFR25	1G147
R30	RES MF W4 100K 1%	1H410
R31	RES MF W4 120K 1%	1H412
R32	RES MF W4 47K 1%	1H347
R33	RES MF W4 470K 1%	1H447
R34	RES MF W4 47K 1%	1H347
R35	RES MF W4 2K7 1%	1H227
R52	RES MF W4 6K8 1%	1H268
R53	RES MF W4 2K2 1%	1H222
R56	RES MF W4 56R 1%	1H056
R58	RES MF W4 330R 1%	1H133
R59	RES MF W4 27K 1%	1H327
R60	RES MF W4 1K0 1%	1H210
R61	RES MF W4 33K 1%	1H333
R71	RES MF W4 15K 1%	1H315
R72	RES MF W4 15K 1%	1H315
R73	RES MF W4 15K 1%	1H315
R74	RES MF W4 15K 1%	1H315
R75	RES MF W4 10K 1%	1H310
R76	RES MF W4 12K 1%	1H312
R77	RES MF W4 220K 1%	1H422
R78	RES MF W4 120K 1%	1H412
R79	RES MF W4 33K 1%	1H333
R80	RES MF W4 1K5 1%	1H215
R81	RES MF W4 2K2 1%	1H222
R82	RES MF W4 100R 1%	1H110
R83	RES MF W4 4K7 1%	1H247
R84	RES MF W4 18K 1%	1H318
R101	RES MO 3W 5% 0R22 KOASPR3	1Q922
R102	RES CF 1W 1R5 5%	1E815
R103	RES CF 1W 5R6 5%	1E856
R104	RES MF FU W3 100R 5% NFR25	1G110
R105	RES MF W4 470R 1%	1H147

ALPHA 9/9P SERVICE MANUAL

R106	RES MF FU W3 100R 5% NFR25	1G110
R107	RES MF W4 470R 1%	1H147
R108	RES MF FU W3 100R 5% NFR25	1G110
R109	RES MF W4 1K0 1%	1H210
R110	RES MF W4 1K0 1%	1H210
R111	RES MF FU W3 220R 5% NFR25	1G122
R112	RES MF FU W3 220R 5% NFR25	1G122
R113	RES MF FU W3 470R 5% NFR25	1G147
R114	RES MF FU W3 470R 5% NFR25	1G147
R115	RES MF W4 1K0 1%	1H210
R116	RES MF W4 18K 1%	1H318
R117	RES MF W4 5K6 1%	1H256
R118	RES MF W4 2K7 1%	1H227
R119	RES MF W4 2K7 1%	1H227
R120	RES MF W4 4K7 1%	1H247
R121	RES MF W4 330R 1%	1H133
R122	RES MF W4 2K7 1%	1H227
R123	RES MF W4 100R 1%	1H110
R124	RES MF W4 220R 1%	1H122
R125	RES MF W4 18K 1%	1H318
R126	RES MF W4 2K7 1%	1H227
R127	RES MF W4 5K6 1%	1H256
R128	RES MF FU W3 10R 5% NFR25	1G010
R129	RES MF FU W3 470R 5% NFR25	1G147
R130	RES MF W4 100K 1%	1H410
R131	RES MF W4 120K 1%	1H412
R132	RES MF W4 47K 1%	1H347
R133	RES MF W4 470K 1%	1H447
R134	RES MF W4 47K 1%	1H347
R135	RES MF W4 2K7 1%	1H227
R152	RES MF W4 6K8 1%	1H268
R153	RES MF W4 2K2 1%	1H222
R156	RES MF W4 56R 1%	1H056
R158	RES MF W4 330R 1%	1H133

R159	RES MF W4 27K 1%	1H327
R160	RES MF W4 1K0 1%	1H210
R161	RES MF W4 33K 1%	1H333
R173	RES MF W4 15K 1%	1H315
R174	RES MF W4 15K 1%	1H315
R175	RES MF W4 10K 1%	1H310
R176	RES MF W4 12K 1%	1H312
R177	RES MF W4 220K 1%	1H422
R178	RES MF W4 120K 1%	1H412
R179	RES MF W4 33K 1%	1H333
R180	RES MF W4 1K5 1%	1H215
R181	RES MF W4 2K2 1%	1H222
R182	RES MF W4 100R 1%	1H110
R183	RES MF W4 4K7 1%	1H247
R184	RES MF W4 18K 1%	1H318
R185	RES MF W4 47K 1%	1H347
R201	RES MF W4 2K4 1%	1H224
R202	RES MF W4 220R 1%	1H122
R203	RES MF W4 2K4 1%	1H224
R204	RES MF W4 220R 1%	1H122
R205	RES MF FU W3 10R 5% NFR25	1G010
R206	RES MF FU W3 10R 5% NFR25	1G010
R207	RES MF FU W3 10R 5% NFR25	1G010
R404	RES MF FU W3 1R0 5% NFR25	1G810
R501	RES MF W4 47K 1%	1H347
R502	RES MF W4 47K 1%	1H347
R503	RES MF W4 100R 1%	1H110
R504	RES MF W4 47K 1%	1H347
R505	RES MF W4 47K 1%	1H347
R506	RES MF W4 100K 1%	1H410
R507	RES MF W4 18K 1%	1H318
R508	RES MF W4 47K 1%	1H347
R509	RES MF W4 47K 1%	1H347
R510	RES MF W4 100K 1%	1H410

ALPHA 9/9P SERVICE MANUAL

R511	RES MF W4 18K 1%	1H318
R512	RES MF W4 18K 1%	1H318
R513	RES MF W4 33K 1%	1H333
R514	RES MF W4 47K 1%	1H347
R515	RES CF 1W 1K0 5%	1E210
R516	RES CF 1W 1K0 5%	1E210
R517	RES CF 1W 2K7 5%	1E227
R518	RES CF 1W 2K7 5%	1E227
R519	RES CF 1W 330R 5%	1E133
R520	RES CF 1W 330R 5%	1E133
R524	RES MF W4 18K 1%	1H318
R525	RES CF W2 100R 5%	1D110
R526	RES CF W2 100R 5%	1D110
R527	RES MF W4 10R 1%	1H010
RA1	RES MO 3W 5% 0R22 KOASPR3	1Q922
RA101	RES MO 3W 5% 0R22 KOASPR3	1Q922
RLY501	RELAY G5Z-2A-E 24V	A207
RLY502	RELAY G5Z-2A-E 24V	A207
SK305	PHONO SKT 4-WAY EMC GOLD	8D225
SK501	BINDING POST 4WAY GOLD LTS04102002G	8D416
SK502	BINDING POST 4WAY GOLD LTS04102002G	8D416
SK503	IEC MAINS CONN PCB INS PX	8A001
SK504	STEREO JACK PCB	8D301
SPRFS	SPARE FUSE 20mm 1.6A AS	C12166
SPRFS	SPARE FUSEHOLDER	F062
SW501	SW PUSH 2PCO	A1008
SW502	SW PUSH 2PCO	A1008
SW503	SWITCH PUSH MAINS OPST SDS3P	A1006
TC1	TRANSFORMER CLAMP	E00201
TC2	TRANSFORMER CLAMP	E00201
TH501	THERMISTOR SIEMENS B59008	1T002
TX1	ALPHA9 MULTI VOLTAGE TRANSFORMER	L817TX
Y2	TX WIRE RESTRAINT	F185
Y3	TX WIRE RESTRAINT	F185

Y20	COPPER RIVET	HP007
Y21	COPPER RIVET	HP007
Z1	IC AUDIO NE5534N	5A5534
Z3	IC COMPARATOR DUAL LM393A	5M393A
Z101	IC AUDIO NE5534N	5A5534
Z201	IC VREG POS LM317T	5D317T
Z202	IC VREG POS LM337T	5D337
Z501	IC COMPARATOR TA7317P	5M7317

Alpha 9P Non PCB Parts, Metalwork etc.

Part No.	Description
8K006	U-LINK
E802CH	CHASSIS
E802MI	PCB INSULATOR
E803SP	ALPHA 9/9P AMP SUBPANEL
E804AP	FELT RING
E804CP	ALPHA 9/9P COVERPLATE
E809RP	REAR PANEL
E814FP	ALPHA 9P FASCIA
E815PM	POWER BUTTON
E822PM	FOOT
E825PM	ALPHA 9 BADGE
E901HK	HEATSINK ANODISED
F037	TOROIDIAL TRANSFORMER CLAMP
F038	RUBBER WASHER FOR ABOVE
HA6K55A	TRANSFORMER BOLT
SH053	OWNERS HANDBOOK
SH058	WARRANTY LEAFLET









